

- ◆ Where the review process identifies undesirable potential impacts, the foresters consult with the reviewers to design a practical solution. Once the review process is complete, the foresters lay out and mark the harvesting lots. At this time a Forest Cutting Practices Act (MGL Ch. 132) Cutting Plan is prepared (outlining skid roads and specific site impacts). The Forest Cutting Plan is submitted to the Department of Environmental Management (DEM) and copied to the local Conservation Commission. After the lot has been advertised and awarded to a private contractor, Chapter 132 requires DEM staff to conduct a site visit prior to the start of the operation if wetland resources are involved. These regulations also require that Department of Environmental Management Service Foresters check all cutting plans against the Natural Heritage maps of rare and endangered species habitats and, if they overlap, submit these plans to Natural Heritage for review and comment.

Throughout the active operation, it is the responsibility of the forester in charge to continuously monitor compliance with water quality protection measures. In particular, these include stream crossings and work near wetlands, conditions of skidder and forwarder roads as well as main access roads, equipment maintenance, and the treatment and placement of slash. The Division “Permit to Harvest Forest Products” includes detailed specifications for each harvesting operation. During the operation, the Division reserves the right to suspend the harvesting activity if warranted by weather, soil, or wildlife conditions. Upon completion of silvicultural operations, it is the responsibility of the foresters to check for full compliance with all timber harvest permit specifications prior to the release of the performance bond and filing of final reports.

### **5.3 *Management of Non-Forested MDC Lands***

#### **5.3.1 Management Practices for Non-Forested Management**

In 1999, Division forestry and wildlife staff performed an intensive survey of all non-forested, non-wetland habitats on MDC land at Wachusett. The following data were collected or calculated for each area:

- ◆ Habitat type (Forb dominated, Grass dominated, Shrub dominated,
- ◆ Hay field, Gravel pit, Administrative)
- ◆ Primary Cover (Forb, Grass, Shrub)
- ◆ Secondary Cover (Forb, Grass, Shrub)
- ◆ Primary Soil Class (Xeric, Mesic, Hydric)
- ◆ Secondary Soil Class (same)
- ◆ Slope (<1%, 1-5%, 6-10%, >10%)
- ◆ Aspect
- ◆ Invasives Present (Yes/No, including a list of species)
- ◆ Sub-Basin
- ◆ Acres
- ◆ General Comments (including the presence of birds that require non-forested habitats)

There are currently 162 uniquely identifiable non-forested management areas totaling 964 acres on MDC lands in the Wachusett watershed (an additional 5 areas totaling 39.6 acres exist on off-watershed MDC lands). This represents 6.3% of the total 15,307 acres of MDC land in the watershed. In comparison, the MassGIS 1992 land use datalayer indicates that on non-MDC land in the watershed, non-forested non-wetland habitat types cover nearly 14% of the land area. Residential areas (generally non-forested) cover an additional 12% of the non-MDC land area.

**TABLE 27. ACREAGE OF NON-FORESTED HABITATS BY SUB-BASIN**

Sub-basin	Sub-basin Name	Acres of Non-Forest	Percent of MDC
1	Res. Shoreline North (Gates 36 - Rt. 12)	59.5	4.0
2	Res. Shoreline South (Rt. 12 – Malag. Bk.)	17.4	3.0
3	Res. Shoreline East (Malag. Bk. - Gate 40)	7.1	0.6
4	Thomas, Quinapoxet and Stillwater Basins	127.7	18.6
5	French Brook	1.7	0.6
8	Muddy Brook	8.6	7.3
9	Gates Brook	2.3	0.8
11	Malden Brook	41.8	10.0
13	Asnebumskit Brook	18.0	12.4
14	Quinapoxet River	84.9	3.2
15	Trout Brook	156.8	12.1
16	Wausacum Brook	88.6	8.3
17	South Stillwater River	266.5	24.0
18	Middle Stillwater/Rocky Bk./Wilder Bk.	30.0	2.5
19	North Stillwater/ Justice Brook	5.4	1.1
20	Wachusett Brook	49.0	2.8
21	Off-Watershed lands	39.6	N/A

**TABLE 28. ACREAGE OF NON-FORESTED HABITAT TYPES**

Habitat Type	Acres	Percent of Non-Forest Land
Hay	308.9	33
Grass	201.4	21
Shrub	186.3	20
Forb	151.3	16
Administrative	77.5	8
Savannah	14.3	1
Gravel Pit	13.1	1
<i>Total</i>	<i>952.8</i>	<i>100</i>

A management plan will be written for each field the Division intends to maintain as a field, which will address: the specific goal(s) of management; cutting/mowing schedules and procedures; control of invasive plants; filter strips width and maintenance; and other maintenance practices.

## **5.3.2 Reservoir Shoreline Maintenance**

### **5.3.2.1 Shoreline Hedge**

One of the most notable aesthetic features of the Wachusett Reservoir is the arborvitae hedge that parallels the shoreline. Originally planted along 34.3 miles of the 40-mile shore (including islands), it was designed to screen out leaf litter that could potentially discolor the reservoir water. “All the deciduous trees on the shore of the lake will be removed,” states a Worcester Telegram article in May of

1900, “as the leaves falling and blowing into the water will tend to discolor and make impure the drinking water of the Metropolitan district and cause decaying vegetable matter to gather in the hollows of the bed of the lake”. Arborvitae (*Thuja occidentalis*, also known as Northern white-cedar) seedlings were planted three feet apart in two parallel rows set two feet apart beginning twenty-five feet from the high water flow line. Behind this, at least two rows of white pine were planted. The result is a full height screen with the ten to thirty foot tall, shade tolerant arborvitae providing the bottom of the screen and the eighty-foot tall white pines towering over, providing the top.

A report written by MDC forestry staff (French and Buzzell, 1992) found that as of 1992, 27.9 miles of the original 34.3 miles survived. The 6.4 miles of loss are due to a variety of factors. The primary instrument of destruction has been soil erosion, particularly on the outwash bluffs that dominate the shoreline in Boylston. To a lesser degree, fire and blow-down have made smaller scale deductions over time though many of these gaps have repaired themselves with time. Arborvitae has shown itself to be a tenacious survivor, able to grow on a wide variety of soil types and able to reproduce both by seed and vegetatively.

Since the planting of the shoreline hedge, an annual regimen of vegetation control in front of the hedge has occurred. In every year until the late 1980’s, all of the vegetation growing from the water’s edge up to the hedge was cut. This was necessary to both insure the survival of the arborvitae, into which much time, money and effort had been invested, and to eliminate any source of leaf material from in front of the leaf screen. During the late 1980’s and early 1990’s, it became clear that the shrinking labor crews could no longer achieve the goal of complete yearly cutting. Also, the necessity of removing all of the vegetation was questioned based on protection of water quality. What marginal benefit, if any, is gained by cutting all vegetation rather than a portion and is it worth the effort?

Today, the shoreline is cut on a rotational basis and only tree species are removed. The goal is to encourage the herbaceous and shrub species to dominate the shoreline thereby discouraging tree growth. It is the trees that pose a threat to the arborvitae through shading and the trees that, if allowed to grow to full size, generate far more leaf litter than shrubs. Given the current condition of the vegetation, a rotation whereby the entire shoreline is cut every five years seems optimal (the current rate of cutting will have to be increased to meet this goal). This will result in about seven miles being cut annually. In time, as the mountain laurel, blueberry, dogwoods, witch-hazel and others come to dominate the shoreline, the interval of time that any section of shoreline will require cutting will increase. This program will have to remain flexible and adaptive, as all of the sections of the shoreline will not respond identically. It is certain that some sections will take longer to develop this inhibiting shrub layer so these will require more frequent maintenance.

#### **5.3.2.2 Wildlife Considerations**

The shoreline along the reservoir and its islands provides breeding habitat (common loons, mallard ducks, Canada geese) and food resources (beaver, spotted sandpiper) for various wildlife species. In most cases, the narrow width and characteristics of the shoreline precludes the use of most wildlife species. However, the habitat it does provide is critical to some animals and attracts other animals that could impact water quality. To address these concerns, shoreline management should consider three issues: conversion of grassy shoreline to woody vegetation, maintenance of critical shoreline habitat, and removal of undesirable vegetation.

#### **5.3.2.2.1 Conversion of Grassy Shoreline to Woody Vegetation**

Several areas of the reservoir's shoreline are maintained in open grassy conditions (North/South dike, Old Stone church). The north and south dike must be maintained free of woody vegetation in order to preserve the structural integrity of these earthen dikes. However, woody vegetation takes several years to invade and become established. Therefore, the dikes will only be fully cut every other year. In off years, several feet on either side of existing roads will be cut to allow pedestrians clear access. Cutting the dikes every other year would provide better wildlife habitat, while still maintaining herbaceous cover.

In other shoreline areas, grassy fields exist (Old Stone Church, Rt. 12 powerlines, Gate 1) that are not related to structural resources. One of these grassy areas is located in an undesirable area in close proximity to critical watershed resources (Gate 1). In this area, there is no engineering reason to maintain herbaceous cover. The grassy habitat attracts feeding Canada geese, which may impact water quality. This area will not be cut or maintained in herbaceous cover and low-growing woody vegetation may be planted to replace existing grass.

There are grassy areas located outside critical watershed areas that do not need to be maintained for structural reasons (Stone Church, Rt. 12 powerlines) but have been kept in open conditions for aesthetic or public access concerns. The area immediately around the Old Stone Church will be maintained in lawn to provide public access. The remaining open areas on both sides of the Rt. 12 causeway will be completely cut every other year. This will allow a wider diversity of vegetation to grow, but will still maintain the area in open condition.

#### **5.3.2.2.2 Removal of Undesirable Vegetation**

The Division closely monitors beaver activity within the reservoir and removes and discourages any active beaver colonies. While most of the reservoir's shoreline provides marginal to poor beaver habitat because of shoreline structure (riprap, rock), exposure to wind and waves, and lack of food resources, there are areas that represent moderate beaver habitat. Typically these areas are located in coves that provide protection and have an adequate supply of woody vegetation along the shore. In order to discourage dispersing beaver from occupying these sites, selective cutting to remove preferred woody vegetation should occur at least every 5 years. When planning shoreline maintenance activities, these areas should be given priority. In addition, to date no selective cutting has occurred on most of the reservoir's islands. Some of these islands also represent moderate habitat, and cutting will be conducted there as well.

#### **5.3.2.2.3 Maintenance of Critical Shoreline Habitat**

The islands within Wachusett Reservoir provide nesting habitat for Common loons, a state listed species of special concern. Loons nest almost exclusively on islands (or floating rafts), and it is doubtful that the Reservoir's main shoreline would attract nesting pairs. Loons typically nest on small islands with sparse or low-lying vegetation. Some loons will locate their nest in dense vegetation, although many nests are in the open and exposed. There are several islands within the reservoir that either provide nesting habitat or could potentially attract breeding pairs of loons. Most of these islands contain low-lying vegetation, although some pioneer tree species (birch, poplar) are invading. In the future, it may be necessary to remove or disturb vegetation on these islands in order to provide optimum breeding habitat for loons.

### 5.3.3 Agricultural Land Under MDC Control

In 1987, the MDC entered into a cooperative agreement with the Department of Food and Agriculture to permit the use of certain parcels of MDC land by local farmers. The intent was to find a low cost means of maintaining these areas in an open condition many of which (particularly at the Ware River and Quabbin Reservoir) were created by clearing poor quality pine plantations with the goal of increasing water yields. Since then, many of the parcels that have been acquired (particularly in the Wachusett watershed) have included agricultural fields. While water yield is currently less of a concern, and the vast majority of the MDC's holdings will be maintained in forest cover, a small percentage will be maintained in an open state. This management decision recognizes the value of fields for wildlife diversity, maintenance of the rural landscape, and their contribution to the local agricultural economy. Low impact agriculture is an effective method of maintaining such fields.

The presence of agricultural fields is a significant component in the overall scenic character of the Wachusett watershed. The wholesale conversion of these fields to a forested condition would represent a significant change in this character. The rate that this change would occur must be acknowledged along with the overall change in this scenic quality. The MDC recognizes the impacts that its land management decisions can have on the scenic resources of the watershed.

Forestry and wildlife staff conducted a complete inventory of all non-forested areas on MDC lands in 1999. This work concluded that there are 309 acres of hay field on MDC property. This represents 2.0% of MDC land. These are 29 fields that have either been hayed under MDC/DFA special permits or were hayed in the recent past prior to MDC purchase. In 1999, 19 fields totaling 201.7 acres were hayed under permits administered by DFA. An additional 86.1 acres are hayed or mowed annually according to deeded rights granted to the prior owner.

The following criteria will be used when deciding which MDC fields will be maintained as fields through the agricultural permitting system and which will either be converted to forest cover (either naturally or with help by planting) or maintained as non-agricultural open space:

- ◆ Only fields that have traditionally been used for agricultural purposes will be considered (no new fields will be created).
- ◆ No fields will be maintained on hydric soils.
- ◆ No fields will be allowed within 50 feet of any Surface Water or Tributary as defined in 350 CMR 11.00 (The Watershed Protection Act).
- ◆ No field will be maintained on slopes that average greater than 15%.

Once all fields are screened through the above criteria, Division personnel will make the final decision on a field by field basis. The criteria used will include the proximity of the field to tributaries and wetlands, slope, soil type, the adequacy of existing buffers or berms and the potential benefits to wildlife diversity. In fields where the buffers are considered inadequate, the Division will decide whether to assist natural succession by the planting of appropriate species of trees and shrubs or to allow natural development to occur. Hay will be the only crop that may be grown on MDC lands.

MDC personnel will then create a management plan for every field that has been chosen for continued agricultural use. This plan will include a map showing all required buffers, specifications for allowable fertilizers and soil testing and restrictions on timing of the cutting or number of cuts allowed and restrictions on the type and frequency of reseeding. Constraints and conditions will be applied according to three general levels of sensitivity:

#### Maximum Restrictions:

These will be applied to fields that are nearest to tributaries or through a combination of slope, soil, quality of buffer and proximity to a tributary are deemed more sensitive than proximity alone might indicate. Restrictions and stipulations are:

- ◆ The use of all pesticides and herbicides is prohibited.
- ◆ The use of manure, uncomposted or composted, is prohibited.
- ◆ Only slow release fertilizers\* may be used in accordance with soil test results.
- ◆ Ground limestone may be used in accordance with soil test results.
- ◆ Reseeding may only be done using no-till methods.
- ◆ A detailed review will be conducted for these fields, to determine whether buffer widths need to be larger than 50 feet.

\* As defined in the Association of American Plant Food Control Officials Publication No. 48

#### Minimum Restrictions:

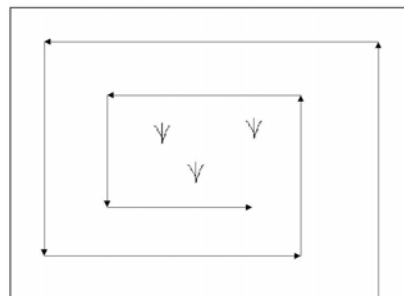
It is difficult to determine the precise hydrological connections between fields and tributaries. However, these minimum restrictions will be applied to fields that are considered the least sensitive due to distance from tributaries or other resources or when a combination of slope, soil, quality of buffer and distance to a tributary are deemed less sensitive than proximity alone might indicate. For instance, a field may be simply too far from any wetland regardless of soil or slope to be considered sensitive. On the other hand, a field may be nearer to a tributary but level terrain with a well-vegetated buffer may render it less sensitive. Restrictions and stipulations are:

- ◆ The use of all herbicides and pesticides is prohibited.
- ◆ Fertilizer (slow release or otherwise) may be used in accordance with soil test results.
- ◆ No compost or manure may be used.
- ◆ Ground limestone may be used in accordance with soil test results.
- ◆ Reseeding may be done using till or no-till methods.

Moderate restrictions will be applied to all fields that fall between the two extremes of sensitivity. They will consist of an appropriate adjustment of the already stated restrictions and stipulations.

In order to maximize their wildlife value, leased fields may be subject to certain additional restrictions when deemed necessary in order to conserve grassland nesting birds and other wildlife.

- ◆ When feasible, cut the fields only once as late as possible, preferably after August 1, but at a minimum mowing should be delayed until late June. Cutting should be done before the first frost.
- ◆ If cutting must be done prior to late June, then cutting should occur in one of the following manners:
  - ✧ Set aside 50% of the field from cutting until June. The unrestricted half can be cut anytime. Second cuttings can occur on either area at the farmer's discretion.
  - ✧ Cut the whole field leaving uncut strips of at least 1 tractor width between cut areas.
  - ✧ On small fields, the whole field may be cut and it should be done in a series of parallel lines from the inside out leaving an uncut patch in the middle of the field as shown here:



Recommended Cutting Method

### 5.3.4 Administration Areas

In addition to lands purchased and maintained expressly for water quality protection, MDC owns lands that are used for administrative or other purposes. These areas fall into several categories based upon their maintenance needs and aesthetic interest.

*Administrative Facilities:* These areas include The Wachusett Administrative Office and Maintenance Headquarters on Wilson Street, Ranger Headquarters and adjacent House on Wilson Street, West Boylston Maintenance headquarters on Lancaster Street, Oakdale Power Station, and John Augustus Hall (although not actually owned by MDC, the grounds of the facility are maintained by MDC). These sites are generally in residential areas and are viewed and/or accessed by the public. None of these sites are within close proximity to the Reservoir or a tributary with the exception of the Oakdale Power Station. Therefore maintenance includes mowing of grass to maintain appearance and access and the periodic maintenance of shrubbery, both of which occur on an as needed basis to maintain the appearance of these facilities. The use of soil additives, such as limestone, to maintain the integrity of the lawns in these areas will be considered only after soil tests are made. Herbicides and pesticides are used only as a last resort and any use is in compliance with all applicable laws and regulations.

*Public Areas:* Other areas used extensively include: the Old Stone Church; the area on Route 140 adjacent to the Route 12 crossing of Thomas Basin (near Bob's Hot Dog stand); the top of the Dam on both sides; River Road; the powerhouse and fountain area below the dam; and the North Dike area. These areas experience significant public use, are very visible and historically have been maintained in mowed lawn areas for public access. Most of these areas are in close proximity to the Reservoir and therefore maintenance plans must consider potential water quality impacts. Most of these areas will be mowed with similar frequency to the Administrative Areas, with several noted exceptions:

- ◆ The steep slopes on either side of the dam and along River Road are currently mowed. MDC is researching alternative types of ground cover to eliminate the need to mow some of these areas, while maintaining an acceptable appearance.
- ◆ The North Dike area will be mowed only as often as needed to limit the growth of woody vegetation, which may impact the stability of the dike. The area will be monitored and more regular mowing of the top of the dike employed if public access becomes limited by tall grass.

Work needs to be done to restore eroded and unstable areas along the Dike. These areas will be graded, seeded and mulched. Herbicides and pesticides will be used only as a last resort and then will be used in compliance with all applicable laws and regulations. Woody vegetation in these areas will be removed or trimmed only as needed to provide access and for public safety along walkways and pathways.

*Open Areas with Limited Public Use or No Public Access:* These areas include: the field under the power lines at Gate 25; the small field area at Gate 26; the small area between the West Boylston Rail Trail, the gravel parking area along Thomas Street and the Quinapoxet River basin; the field at Shaft 2 on Manning Street; and the South Dike. The South Dike will be mowed only as needed to keep woody vegetation from growing on the dike. The same is true in fields at Gate 25 and 26. The area adjacent to the gravel parking area on Thomas Street should be left to grow naturally except for a maintained roadway along the River. The Gate at this road will be relocated closer to Thomas Street to discourage vehicle access in this area.

*Old Stone Church and Stillwater Farm:* Management at the Old Stone Church and at Stillwater Farm are discussed in more detailed in the following section.

### **5.3.5 Historic/Aesthetic Management**

#### **5.3.5.1 *Stillwater Farm***

The Stillwater Farm Interpretive Site in Sterling is a collaborative venture between the MDC/DWM and the Friends of the Wachusett Watershed. This locally significant historic property was purchased by DWM in 1990 as part of the ongoing system-wide land acquisition program. The eighteenth century farmhouse and nineteenth century barn are being restored and fitted for use by DWM interpretive staff and the Friends. The long-range goal is to use the farm as a watershed and land use history educational facility. In 1997, the MDC/DWM and the Friends signed a joint Memorandum of Agreement outlining collaborative efforts in preserving Stillwater Farm. A self guided Forest Stewardship Interpretive Trail loops through the wooded hillside above the Farm. One square acre is delineated in a meadow behind the barn. Mowed trails in the meadow adjacent to the Stillwater River and attendant wetlands will provide close hand viewing of early field succession following agricultural abandonment. The barn and house will be used for displays and exhibits pertaining to watershed dynamics, land-use history, and natural resource protection. Stillwater Farm provides a unique opportunity to demonstrate the delicate relationships between land use and water quality, through targeted programming on a property currently moving from an agricultural past to a its new role in watershed protection. Overall, public use of the Stillwater Farm will be of a low-impact nature.

#### **5.3.5.2 *Rail Trails***

The Wachusett watershed has two proposed rail trails within its boundaries, including the old Massachusetts Central Railroad (MCRR) bed and the Sterling spur. The Wachusett Greenways group is championing both trails. The MCRR was a 104-mile rail line that was chartered in 1869 to carry freight and passengers between Boston and Northampton. The MCRR ceased passenger service west of Clinton in 1932 and freight service west of Oakdale in 1938. The line between Rutland and Oakdale was abandoned in 1939. The only section of either trail currently open to the public is a 1.2-mile section in West Boylston. The West Boylston section enjoys tremendous popularity and support from the general public. Ownership of the old rail lines is split among the MDC, local towns, and several private parties. The Wachusett Greenways group is coordinating interested parties and spearheading efforts to bring the rail trail to reality in abutting towns. MDC involvement is critical to the eventual linkage of the various sections.

Rail trails provide a safe, enjoyable recreational opportunity to the general public. The trails act to channel recreation to a narrow well-defined corridor thus controlling recreational impacts. Trailheads act as excellent points of contact for information exchange and rules education. The higher the use of the trails the less likely illegal and unwanted activities will take place there, e.g., horse riding, consumption of alcohol, or motor vehicle use. High use also means a higher degree of safety from medical problems and crimes against people. The public is very enthusiastic about the section that is now open and seems appreciative of the efforts MDC has made to develop the trails. Where the rail corridors cross water, MDC/DWM is working to help install bridges that should ameliorate negative impacts. The spirit of cooperation and coordination with many local residents that has developed around rail trails should help the MDC/DWM accomplish its mission of safeguarding the Wachusett watershed to ensure the safety of the MWRA's water supply.



### **5.3.5.3 Old Stone Church**

The Old Stone Church is a historic and picturesque site located on the northwest shore of the reservoir in the town of West Boylston. The original Baptist church was built in 1892 and the Metropolitan Water and Sewerage Board purchased the church in 1902 as part of Wachusett reservoir construction and was left standing to commemorate the town. In 1973 the Old Stone Church was listed in the National register as a historic site. By 1975, the structure had fallen into a dire state of disrepair and the town petitioned the state legislature to appropriate funds to rebuild the church. The exterior structure of the church was completely rebuilt by the MDC with assistance of the West Boylston Historical Commission by 1983. Today, the church serves as a landmark for the town and has become a well-known tourist attraction. MDC/DWM staff regularly maintain the grounds and area around the Church.

## **5.3.6 Site Restoration**

### **5.3.6.1 Unused/Abandoned Buildings**

Most of the unused or abandoned buildings within the Wachusett watershed were acquired during the land acquisition program dating back to 1986. Several new land acquisitions contain structures that may be of use to the Division, and the cost-effectiveness of retaining these is being considered. Buildings that are not needed because of location or condition will be scheduled for demolition and removal. There are presently 13 properties that have abandoned structures scheduled for demolition and removal. The structures include houses, garages, barns, sheds, cabins, and one service station. Environmental assessments for these 13 sites have been completed and they are in the process of being cleaned up through a Division contract. Once environmental cleanup is complete, an additional Division contract will accomplish building demolition/removal and site restoration.

For all unused/abandoned structures, the environmental site and building assessments required include sampling and testing for asbestos-containing materials (ACM) and lead-based paints (LBP). Depending on the history of the site and field observations for evidence of hazardous materials, a Licensed Site Professional (LSP) may be needed to assess for any possible 21-E (hazardous materials) issues. Following the site assessments, Division contracts must be written for removal of all ACM, excessive levels of LBP and removal of hazardous materials. Upon resolution of environmental issues, a demolition and removal contract can be written and advertised. Complete site restoration, including loaming, grading, and hydroseeding of the demolition sites, is part of this contract.

### **5.3.6.2 Compromised Sites (solid waste/21E)**

There are several dumpsites (consisting of solid waste only) on MDC property within the Wachusett watershed. These areas of waste include building materials, scrap metal, furniture, appliances, and other miscellaneous debris. These sites are included in the proposed demolition and removal contract. One area of building material debris has ACM (roofing shingles) that will be disposed of as hazardous materials. Any other evidence of possible hazardous materials at dumpsites will require additional environmental assessments for testing by a LSP and proper disposal as recommended. Following the site cleanup, any site restoration necessary will be completed.

### **5.3.6.3 Exhausted Gravel Pits or Stripped Land**

There are presently 2 gravel pits on MDC property in the watershed that are either exhausted of usable material or are not used for other reasons. These pits were established prior to MDC acquisition. In addition, there are several areas that have been stripped of topsoil for a variety of reasons. Together, these areas account for a total of approximately 82 acres of land. These lands are not functioning as a suitable producer of high quality water due to the lack of forest cover. Therefore, it will be the goal of the Division to “put to bed” all of these pits and reclaim the stripped land during the next ten years. The procedure for this will be as follows:

- ◆ A pit must first be declared abandoned by the Superintendent after consulting with forestry, civil engineering, natural resources and environmental quality staff.
- ◆ The stability of the pit (angle of faces, etc.) and the actual erosion threat in the pit should be determined. If the pit is determined to be stable, then a wildlife habitat evaluation should be conducted to determine if the pit should be left in its abandoned state with no additional reclamation (see section 5.4.3.2).
- ◆ For sites determined to be in need of reclamation, a plan for the reclamation (pit or stripped land) will be created jointly by representatives from the forestry, civil engineering, natural resources, and environmental quality staffs.

A typical plan will include specifications, procedures and schedules for:

- ◆ Knocking down the pit banks to a stable slope.
- ◆ Adding loam to a desired depth.
- ◆ Determining the origin of the loam.
- ◆ Revegetating the site in both the short and long term.
- ◆ Determining erosion mitigation needs (i.e. hay bales or silt fence).
- ◆ Scheduling consultation with the local Conservation Commission when necessary.

### **5.3.7 Recreation Management**

#### **5.3.7.1 Requests for Additional Town Recreation Land**

On occasion, the Division of Watershed Management has received requests from towns to use, lease or obtain land that is under control of MDC. Many of these requests include the use of lands for athletic fields. The DWM has an approved Policy Statement entitled “Criteria, Requirements and Procedures Related to Request for Disposition of Metropolitan District Commission Division of Watershed Management Lands” dated April 30, 1998. The requirements and procedures set forth in this policy are followed by the DWM when local towns approach the agency for land swaps and/or leases.

As stated in this policy “The Metropolitan District Commission DWM will consider an Article 97 land disposition only under exceptional circumstances. The determination of what constitutes ‘exceptional circumstances’ rests with the Metropolitan District Commission and EOEA.” In addition, it states, “The Metropolitan District Commission DWM shall not promote the use of watershed lands for purposes that are inconsistent with water quality goals.”

### **5.3.7.2 Principles from Wachusett Access Plan**

The Wachusett Public Access Plan was developed to guide future MDC policy regarding public access and recreational use of its 16,000 acres of land and water resources. The access plan was completed in 1996 after more than two years of cooperative input from staff and local communities, recreationists and other open space advocates. The goal of the plan was to reduce the existing level of threats to water quality from public use of MDC Watershed lands and to provide management programs that afford long term protection of Wachusett Reservoir. Recommendations made in this plan have been developed to address specific concerns of the U.S. Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (DEP) that focus on the threat of *Giardia* and *Cryptosporidium* pathogens that can be introduced from human sources and the presence of domestic animals at Wachusett Reservoir. Key management recommendations included:

- ◆ Improve protection of aqueduct intakes
- ◆ Provide greater enforcement of regulations
- ◆ Provide sanitary facilities
- ◆ Improve signage
- ◆ Expand educational programs
- ◆ Foster community participation
- ◆ Improve site maintenance

## **5.4 Management of Biodiversity**

### **5.4.1 Introduction**

Biodiversity can be defined as the diversity of life in all its forms and at all levels of organization (Hunter 1999). This definition encourages us to look beyond simple species diversity and include genetic and ecosystem diversity as well. Setting management goals for maintaining biodiversity is inherently difficult for a variety of reasons. In most cases natural resource managers are responsible for managing biodiversity without a complete understanding of all the elements of biodiversity that may exist. For example, approximately 1.7 million species have been described globally, although estimates of the total number of species range from 10-100 million (Hunter 1999).

The most critical component to any attempt to incorporate biodiversity into management activities is the need for a large-scale perspective. Management decisions must be made with a landscape, watershed, or even a larger regional perspective. Current Division management activities incorporate a multitude of specific activities that maintain or enhance biodiversity at the micro or stand level (i.e., saving wildlife trees, buffering vernal pools, etc.). However, current Division management activities often lack the large-scale perspective that is so important to maintaining biodiversity. Hunter (1999) describes only two real goals when planning for biodiversity. They are: 1) Maintain the biodiversity of ecosystems that are in a reasonably natural condition, and 2) Restore the biodiversity of ecosystems that have been degraded.

The Division's goals for biodiversity focus on either maintaining or enhancing natural ecosystems across the watershed. The Division recognizes that its greatest contribution to regional biodiversity is protecting large areas of land from development and maintaining most of those lands in forest cover. The Division's primary management activity on these lands is creating small openings in the forest to stimulate regeneration and diversify species. These activities maintain forest cover while mimicking small-scale disturbances that occur naturally all the time. When possible and feasible, the Division will